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EDITORIAL NOTES

COAL PRODUCTION AND CONSUMPTION

THE Minister of Fuel and Power was accorded a great welcome on Friday last when he was entertained at luncheon by about twenty professional and technical organizations whose members are concerned with the production and utilization of fuel. With Lord McCowan in the Chair, three hundred gathered together, the arrangements being in the hands of the Institute of Fuel; and Major Lloyd George was assured that in his task of balancing the production and consumption of coal and its derivatives he would have at his disposal the experience and wholehearted assistance of the organizations immediately concerned with the problem. To those who had hoped for some direct guidance or some allusion to definite lines on which the problem will be tackled, the Minister's speech must have been disappointing; it was entirely in general terms. The task, of course, is to close the gap between production and consumption, and Major Lloyd George did not hesitate to say that production is unsatisfactory; at the same time he expressed his conviction that substantial economies in consumption can be made without seriously inconveniencing the people and without seriously reducing efficiency in industry—and he added that he was determined to do everything in his power to see that consumers had proper guidance.

The Minister freely acknowledged that one of the major difficulties lies in the supply of coal of qualities unsuited to particular plant and processes. There are too many appliances, he remarked, with selective appetites; and there was not a great deal of consolation in his observation that in present circumstances, while effort is being made to minimize difficulties, it is "quite impracticable" to supply the correct grades of coal for particular purposes. He remarked that, with shortage of butter, the people had to substitute margarine, and they did so without ill effects. The analogy did not appeal to us overmuch. Apart from the fact that the human body is a highly adaptable internal combustion machine with innumerable compensating devices, there is a great deal of difference between coal and dirt and a great deal of difference even between gas coal and steam coal. We think that, especially in wartime circumstances, every effort should be made to tackle this fundamental aspect of fuel economy at the source—to do all possible to direct the proper grades of coal into the channels in which the best use can be made of them for the war effort. Quality as well as quantity is all-important; production figures alone are not a true index.

There is, of course, every ground for satisfaction in the establishment of a Ministry which can survey and control the fuel industries of the country as a comprehensive whole and not as sectionalized and even antagonistic groups without a common aim. Regarding the need for such a Ministry, Major Lloyd George referred to the views of the late Lord Melchett, founder President of the Institute of Fuel, deploring the antagonism between gas and electricity, and to the pleas of Sir David Milne-Watson for co-ordination between these two great fuel and power industries. The primary aim of the new Ministry, he said, would be to give effect to the recommendation of the Samuel Commission which reported in 1925—to act recognizing that the problem of coal utilization is not one of a simple choice between one or two alternative methods, but of the balancing of a variety of factors involving the co-ordination of several industries—coal, gas, electricity, oil, coke, and chemical products. In this aim the Minister of Fuel and Power is assured of the full help of the Gas Industry, as he is assured of its full help in the steps he envisages to narrow the existing gap between coal production and consumption.

RECURRING DECIMAL

AT the Annual Meeting of the Waverley Association (founded 1861, and proud of this) Mr. James Jamieson, whose remarks were reported in the "JOURNAL" of July 1, said it was unfortunate that the Association had not accepted affiliation with The Institution of Gas Engineers, because this meant that Scottish representation on the Institution Council was limited to one (from the North British Association), which was totally insufficient. He urged linking up with the Institution, thereby making the chain complete. Mr. R. D. Keillor, President of the North British, suggested that the purpose of the meeting would be fulfilled if it resulted in this affiliation. The idea is not new. In 1937 ("JOURNAL" of June 23 of that year) Mr. Jamieson referred to the "isolation" of the Waverley, arguing that affiliation to the Institution was the only reasonable course to take—a course which would bring direct representation in the counsels of the Industry to those whose sphere of activities lies across the Border. In 1938, in his Presidential Address to the Association, Mr. D. D. Melvin remarked: "Although our Association is the oldest gas association in the country, age itself should not warrant us in occupying a position of comparative insularity in matters concerning the technical advancement of our Industry." He put in a plea for affiliation with the I.G.E. In 1941 Mr. Keillor, also at a meeting of the Waverley, expressed the hope that the Association would join up with the Institution ("JOURNAL" of July 16, 1941). The Association, however, it would appear, will have nothing to do with this notion of unification. Amid the strong current of opinion favouring unity and co-ordination, it stands firm on its island of isolation founded in 1861.

JOINT ACTION

ISOLATION was certainly not the theme of the Presidential Address last month of Mr. Robert Cowie to the Waverley. The reverse, in fact ; his plea was for unity, and he reinforced this plea by concrete suggestions. The Industry, he said, is fortunate in its leaders, but added that good leaders are of little avail if they are not backed up by the rank and file, and to give intelligent support there must be knowledge of the problem. Knowledge of the problem is indeed all-important. This has been emphasized consistently by the Director-General of Gas Supply during recent months. Dr. Smith, who was present at the Waverley meeting, divided the problem into two parts—first, the possible role of the Industry in a comprehensive national fuel policy; secondly, the means by which the Industry intended to re-model itself to meet new requirements. The Ministry of Fuel would need a dispassionate enquiry. He thought that nobody actually believed that all the necessary reforms can be effected without legislation; what is wanted is a scheme, determined within the Industry, which after consideration could be put forward, with the help of the Directorate, as a basis for the needed powers. He made the point clearly in Wales on July 2 ("JOURNAL" of July 8) when he said that the best and surest way to satisfactory reorganization is for the central authority to seek powers from the known wishes of the regions expressed through their existing organizations and expressed with solid

unanimity. National organization, in brief, must be based on information and suggestions collected and put forward regionally. Suggestions are, in fact, coming in swiftly, and Mr. Cowie's Address, a substantial part of which was given in last week's "JOURNAL," is a striking example.

Actually, what Mr. Cowie put forward was in line with the recommendations of the 1939 P.E.P. report on the Industry—that is, in regard to regional grouping and the establishment of a national gas authority. In particular he urged the setting up of a Gas Industry Commercial Development Association to co-ordinate existing publicity and marketing associations, and he asked for a "Gas Industry House," under the care of a capable full-time organizer and publicist, for each region. His criticism of the present regime was on these lines: Scotland is, for the purpose of the national organizations (N.G.C., B.C.G.A., &c.), regarded as a district. The "district" elects a management committee and representatives for the national committees. Good on paper; but in fact, the personnel of the committees is almost identical, and "representatives are appointed in virtue of the fact that their particular undertakings are large subscribers, and not because of any specialized knowledge." Nor is the term "management" justified. The committees spend their time at meetings hearing of reports from London; individual members are—at any rate in peacetime—swamped with voluminous reports and minutes unrelated to their individual undertakings, which reports are filed away undigested, or are merely thrown away; instead of having enthusiastic members, the national organizations have grudging subscribers. Obviously the state of affairs is unhealthy; obviously there is need for improvement and change; obviously such thoughts demand consideration by the executives of the national bodies, the Industry's Post-War Planning Committee, and the Directorate of Gas Supply, and doubtless they will meet with consideration. Such criticism of current practice is, we suppose, what is asked for by the Director-General of Gas Supply.

It is good, too, that the "Juniors" of the Industry are putting forward their ideas. They can do so, we know, believing that their contributions to the common pool are wanted, are, indeed, essential to arrive at a balanced picture, and are certain to be given weight and full consideration in responsible quarters. We must have the views of those in closest contact with day-to-day practice in gas manufacture, distribution, and utilization. At a recent meeting the Manchester Juniors set out in earnest to satisfy demand. Four Papers relevant to the issue were given, and we are glad to devote a good deal of space in this issue of the "JOURNAL" to abstracts of these timely, lively, and thought-provoking contributions. The summary of communications from members of the Council of this Junior organization, given at the end of our abstract of the Paper by Mr. H. N. Dann, whose enthusiasm for reconstruction is well known to us, is forthright enough and indicates the way in which the younger members of this energetic District are thinking. Among the fifteen unambiguous suggestions made are that "the cumbersome structure of the present day, supported by associations having powers only permissive in character, will have to go"; "parochial conservatism in the form of local government control of undertakings must be swept away"; and that attention must be given to the concentration of production in large units situated near the coalfields, combined with high-pressure distribution. Mr. Dann, who has wrestled vigorously with the problem and continues his task of getting down to brass tacks, gave a table [p. 133] portraying his analysis of the results of dividing England and Wales into seven regions, each of an area of 256 square miles. He outlined his method of approach, and the data he has collected already should prove of value. It is significant if not surprising, for example, that in one area of 256 square miles there are 16 undertakings within a square of side 16 miles. One of these undertakings distributes 70% of the total gas supplied in the area, and some of its trunk feeders run through the districts of neighbouring authorities. The Author, we think with some justification, considers this as being rather foolish practice. Thought will doubtless be given to other opinions which he advanced.

We would call attention, too, to the comparison made by Messrs. Hodkinson and Taylor, authorities on high-pressure distribution, of some of the more outstanding differences between the Industry as it is now, as it could be now, and as it might be in the future were the possibilities of bulk distribution exploited. We think that future developments will require the services of many technicians skilled in the application of the principles and practice of high-pressure distribution, and we would repeat the Author's question: Does the present-day Industry provide suitable training? Certain it is that distribution cannot remain a neglected branch of Gas Engineering.

Control of Fuel Order

The Minister of Fuel and Power has made the Control of Fuel Order, 1942, which came into force last Monday. Under it the Minister has issued specific directions on the supply and consumption of various types of fuel, which can apply to any particular class of persons or premises. They can, among other things, specify the purposes for which, or the circumstances in which, fuel is to be supplied, used, or consumed; and they can prescribe periods during which it may or may not be supplied, used, or consumed. Any existing statutory or other obligation which binds a public utility undertaking is relaxed to whatever extent may be necessary to enable the undertaking to comply with a direction. Another provision gives police constables, or any persons or class of person authorized for the purpose by the Minister, the power to enter and inspect premises, and to inspect and test fuel fittings and appliances. The fuel covered includes coal and coke, paraffin oil, various liquid fuels (which are described in the Order) such as gas and diesel oil, fuel oil, tar, pitch, creosote, &c., and also wood fuel. The order does not apply to fuel used to propel road vehicles.

Prestige Advertising

In a recent comment on wartime advertising we said that in so far as it represents a hindrance to the war effort, or a dissipation of resources or energy on non-essentials, it is justly condemned. In so far as it can be shown to be helping in the war effort, however indirectly, or in the preservation of that for which we are fighting, it should be encouraged as far as circumstances will allow. And we added that those who are advertising now to preserve goodwill are consulting not only their own interests but the national interests as well. To our mind the series of announcements from the house of Radiation Ltd., which is appearing in the national and provincial Press, coalesces smoothly with this line of thought. The Gas Industry was given a foretaste of them by prior appearance of a few of them in the "JOURNAL," and had no hesitation in declaring them both appealing and helpful. Executed in the best of taste, these polished messages, artistically conceived and designed, are attuned to current realities and, we think, are serving a purpose of national importance. They should help to keep alive or even to excite an interest in the services rendered in peace and in war by the Gas Industry, and to sustain Gas Industry goodwill—an "intangible" asset of the utmost value now and to-morrow. For our part, we regard these Radiation announcements as an attractive example of enlightened prestige advertising, all the more stimulating at a time when the Industry, *qua* Industry, appears so assiduously to woo silence and modesty, though we believe we shall shortly be in a position to offer a similar welcome to a national gas effort in prestige publicity.

Personal

Mr. J. H. BINGHAM has resigned from his position as General Manager of Cheltenham Meters, Ltd.

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Mr. JAMES STEEN, for the past 17 years Cashier to Ayr Gas Company, Ltd., has been appointed Secretary of the Company in succession to the late Mr. James Wilson.

* * *

Mr. W. J. BAKER, A.M.I.Mech.E., A.M.I.Chem.E., has been appointed Engineer and General Manager to the Weston-super-Mare and District Gas Company. For eight years, from 1932–39, Mr. Baker was Engineer-in-Chief and Manager to the Shanghai Gas Company, Ltd., and in 1936 he contributed a Paper, "The New Gas-Works at Shanghai," to The Institution of Gas Engineers, though he could not attend the meeting in June of that year when his Paper was presented and discussed. Returning to this country in May, 1939, Mr. Baker occupied for some time the position of Deputy Engineer and Works Manager to the Bristol Gas Company.

Mr. W. C. CHAPMAN, Engineer and Manager, was elected to the Board of the Boston Gas Light and Coke Company last month.

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An interesting "gas" wedding took place in Leamington on July 16, when Miss ZITA FITZGERALD, Cookery Demonstrator to the Gas Company, was married to Mr. ROBERT BURSEY, Technical Assistant at the Gas-Works. Gifts were received from the Company's staff and from the retort house workers.

Welcome to Minister of Fuel

On Friday last some twenty organizations concerned with the production and use of fuel, including The Institution of Gas Engineers, entertained at luncheon at the Connaught Rooms, London, the new Minister of Fuel and Power, Major Gwilym Lloyd George. The occasion, the arrangements for which were carried out by the Institute of Fuel, was marked by an attendance of about three hundred, whose presence and their expressed desire to co-operate to the full must have been a source of satisfaction and encouragement. The chair was occupied by Lord McGowan, who assured the Minister of the wholehearted help of all the organizations chiefly concerned with fuel problems, pointed to the need for close liaison between producer and user of all types of fuel, and expressed the view that if the problem of cleaning coal and allocating it properly was scientifically handled millions of tons of coal could be saved.

Major LLOYD GEORGE said that fuel was not only the life-blood of a nation, but life itself. In this country coal was a priceless asset; it was also a wasting asset, yet it was only now that a Ministry had been established to coordinate their fuel resources. The primary task of the new Ministry of Fuel and Power was to see that the whole of the resources of the country were utilized to the full for the successful prosecution of the war. The gap between consumption and production had to be closed. This could be accomplished by consuming less or producing more, or both. He felt sure that economies could be made, domestically and industrially, without seriously inconveniencing the people and without seriously reducing efficiency in industry. The public, he was convinced, were prepared to do their share if they were guided along the right way; and he was determined to do everything in his power to see that they had that guidance. It would be idle to pretend that coal production was satisfactory. The increased demand which had caused the gap was good inasmuch as it indicated that the country's war effort was growing. In these circumstances difficulties were bound to arise. Efforts were being made to see that the right fuel was given to a particular appliance, but the trouble was that there were too many appliances to-day with selective appetites, and it was quite impracticable in the present circumstances to have the right grades. This made the balancing of consumption with production with greater efficiency much more difficult. Every effort must be made, particularly during the next three months when the peak period was approaching, to eliminate waste in every way.

Having paid tribute to the work of the Fuel Efficiency Committee, Major Lloyd George said that while the immediate task was to win the war, we had to be alive to the fact that the future prosperity of the country must depend to a large extent on the most economical use of our fuel and power resources. After the war we should go through times of great difficulty, but we should have also times of great opportunity. If we could make the fullest use of those two priceless assets, our fuel resources and the skill of our workpeople, the opportunities would far outnumber the difficulties when the war was over.

A vote of thanks to the Minister of Fuel and Power and the Chairman was proposed by Lord DUDLEY GORDON, who expressed satisfaction with the Government's intention that the Ministry should be permanent and not merely a wartime measure.

Manchester District Association

The General Meeting of the Manchester District Gas Association was held at Leeds University on July 3.

The President (Mr. J. E. Lister Cooper) reported that the following had been admitted to membership of the Association: Messrs. F. Bell, B.Sc.(Gas. Eng.), Liverpool; J. Castle, B.Sc. (Gas. Eng.), Northwich; E. N. Farnworth, Wath; W. M. Gledhill, Marple; F. T. Hatswell, Wombwell; G. Hudson, Ossett; G. Langstreth, Todmorden; H. Moys, B.Sc. (Eng.), Lond., Liverpool; D. W. G. Scott, Leeds.

The President then called upon Mr. N. G. Appleyard to give a Paper entitled "Some Distribution Problems in Leeds," saying it had been the intention to visit the different stations of the Leeds Undertaking, but transport difficulties prevented this. Therefore it had been necessary to fall back on what he hoped would prove a successful substitute—*i.e.*, lantern-slides.

Mr. Appleyard then read his Paper, which was followed by a discussion.

At the conclusion of Mr. Appleyard's reply, the President called on Mr. Fletcher to propose an omnibus vote of thanks to Mr. Appleyard, Professor Townend, Professor Whytelaw-Gray, and the University Authorities, and to Mr. Shapley and the Leeds Gas Committee. Mr. N. Hudson seconded the vote.

Mr. C. S. Shapley congratulated the President on the successful meeting, and assured him of the loyal support and help of members during his year of office, which everyone hoped would be a very happy one.

United Kingdom Gas Corporation

General Meeting.

The Seventh Ordinary General Meeting of the United Kingdom Gas Corporation, Ltd., was held on July 14 at Shell House, 55, Bishopsgate, London, E.C. Mr. BRUCE OTTLEY, the Chairman, presided.

The Representative of the Secretaries (Messrs. Close Brothers, Ltd.) having read the notice convening the meeting and the report of the auditors,

The CHAIRMAN said: Once more wartime conditions preclude me from making more than a cursory review of your Corporation's activities. The revenue account shows dividends and interest on investments in constituent companies as being £209,272, compared with £192,204 in the previous year. This increase is in consequence of interest received from the Corporation's newly developed undertaking and acquired undertakings where previous dividends have been suspended or reduced during reconstruction.

Considerable Economies Effected

The sum charged to subsidiary companies for head office advisory services amounts in total to £46,993, as compared with £41,654 in the previous year. This is due to increase in total business and extensions, reconstructions, and repairs that have been carried out by our central administration staff.

Plants which had become too small in large works have been overhauled and transferred to smaller works to meet increased demands. Repairs and renewals normally carried out by outside contractors have been undertaken by our engineering staff employing direct labour. These services, which are only practicable in a holding company organization such as ours, have resulted in considerable savings for our companies with economy in materials and labour, which is of such vital importance in war.

The total revenue was £286,833, compared with £264,543 in the previous year. On the expenditure side of the account the full income-tax liability amounts to £120,127, compared with £92,768 in the previous year. The net result of the year's working shows a slightly increased balance of profit. We are able to write off the sum of £7,541 against certain unproductive assets and to carry forward a slightly increased sum of £14,583.

Increased Industrial Demand

The undertakings linked up with our West Yorkshire Gas Distribution Company have been able to provide for increased industrial demands which could not have been met without the invaluable assistance of that now well-developed undertaking.

Shortage of personnel has inevitably given rise to numerous difficulties, which have been satisfactorily overcome by the increased efforts of our staffs and workpeople. In this connexion I would pay tribute to the assistance received from the new Directorate of Gas Supply of the Board of Trade (now a branch of the Ministry of Fuel and Power) particularly in connexion with the provision of personnel.

During the year our companies have, with the assistance of and collaboration with our head office, undertaken and completed considerable extensions to meet new industrial demands, and while, in many instances, the pressure of these new demands has been difficult to meet, I am pleased to say that the efforts made by our Managing Director and headquarters' staff, together with managers and employees of our companies, have met with success, and are deserving of our warmest gratitude.

Outlook Satisfactory

We have been able satisfactorily to maintain our works and plant in all the areas in which we are interested. We look forward to the results of the current year's working with reasoned confidence.

Colonel Carr has been a very sick man for the past six months, and I should like to send a message from this meeting expressing our hope for his complete and speedy recovery.

The report and accounts were adopted.

The retiring Directors (Mr. Bruce Ottley and Mr. M. H. Tetley) were re-elected, and the Auditors (Messrs. Deloitte, Plender, Griffiths, and Co.) re-appointed.

Messrs. William Edgar & Son, Ltd., of Blenheim Works, Hammersmith, W. 6, inform us that Messrs. McLusky and Blincoe, appliance specialists, are representing them from now onwards north of a line approximately from Leamington Spa to the Wash.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

POST-WAR RESEARCH IN THE GAS INDUSTRY*

By H. H. THOMAS, B.Sc.

IN the Gas Research Board the Industry has an excellent foundation upon which to develop post-war collaborative research which will receive the active and enthusiastic support of every progressive undertaking. And so far as it is possible to ensure central direction of effort in the elucidation of problems by intimate and active co-operation of members and other research organizations, so will over-lapping and duplication be avoided and energy and time conserved. There will accrue also the further advantage of the application of various points of view with appropriate discussion.

The development of and the present position of the Industry are entirely the result of the application of science to its problems, and the future progress will be even more spectacular where the bold policy which applies new knowledge is pursued. Even now there is a fund of information which would improve the service, but which is far from universally applied. Perhaps in some cases considerations of cost have over-ruled technical need, but this view will have to be modified where it is desired to attain the maximum success. The object of the research organization will obviously be the same as that which at present inspires us—service to the consumer at the minimum cost. Such service to the consumer of gas primarily constitutes the absolute consistent operation of any and every appliance whenever its use is required.

We shall probably receive important and valuable suggestions from the Institution's Committees of Enquiry which are at present studying gas quality, sulphur removal, standardization of appliances, and coke quality. Whatever these recommendations may be, it will be useful to obtain views of the immediate needs of the Industry from as many people as possible.

Among the most important subjects will be our raw material—coal. One visualizes very different circumstances prevailing in the coal industry when the quality is accurately defined, when the maximum possible degree of cleaning is carried out before money is expended on transport, and when the collieries take a pride in their product.

The benefits to be derived by collaborative research and exchange of views with the Coal Industry, with the Fuel Research Board, the British Coal Utilization Research Association and the British Colliery Owners' Research Association are infinite. In this connexion, Dr. Smith, the Director-General of Gas Supply, has recently stated that he did not believe that the success of the coal-mining industry depended upon how much coal was raised, but that the success of that industry was reflected by the way in which coal was used.

We may, of course, discover that carbonization is a crude and relatively inefficient method of coal treatment, but in the meantime we should be able to select the raw material most suitable for our purpose on the basis of real knowledge and experience, whether it be to obtain a particular output or quality of gas or a predetermined quality of coke.

In the future it will be undesirable to depend entirely upon local appliance or service governing. The solution is to design the distribution system so that major pressure variations will be avoided.

On the subject of gas quality we must direct our research to the methods of manufacture which will ensure close control of specific gravity, A.T.B. number (especially if aerated burners are to persist), and the elimination of sulphur, in addition to the maintenance of constant calorific value at all loads and demands. All these must be achieved with the minimum effect upon costs. A recent example of the application of science to such control has been described by Mr. Hodkinson, where the sulphur was reduced to 4½ grains per 100 cu.ft. by washing with oil under pressure, advantage being taken of the fact that compressing costs had to be incurred in connexion with a grid distribution system.

At the moment we must consider our smokeless fuel service to include coke. Even with our present knowledge the demand for coke could be improved to an extent to reduce the surplus coke problem to zero. It would be premature and unwise to presume that coke may not ultimately be our primary product; researches into coke production and quality in combination with domestic heating methods may quite conceivably lead to an unimagined extension of the carbonizing industry, apart from the potential use of coke as a primary raw product in chemical industry.

The progressive policy which the members of the Society of British Gas Industries individually and collectively had adopted prior to the war is apparent in the plant and appliances which are available for the manufacture, purification, and utilization of gas. Domestic gas-consuming appliances were a credit to the makers and a benefit to the consumer and the Industry. These achievements were in every case the result of the design being based on investigation and research, and further progress is certain to result from our association under the Gas Research Board. The problems here are concerned with domestic heating and ventilation, and with every type of appliance for the consumption of gaseous and solid fuels. Certain aspects of domestic science also will be investigated, and co-operation with a research organization, such as that maintained by Lever Brothers at Port Sunlight prior to the war, would enhance the service which we could mutually render to the consumer. In these matters our interests vary from details of cooking and baking to home and, particularly, kitchen planning, domestic hot water systems, room heating, and ventilation.

The subjects mentioned may be considered to require immediate study; in addition there is the long-distance research, which may not be of immediate or apparent application, but which must be included in any comprehensive and ably-directed scheme.

* From a Paper to the Manchester and District Junior Gas Association.

NATIONAL FUEL POLICY*

By J. ALBINSON, B.Sc.

IN regard to the use of coal from the thermal point of view the electrical industry can turn coal into power at an overall efficiency of about 18%. They can raise steam on about a 30% conversion of the thermal energy and convert that steam into electrical power, then distribute it with a further loss, giving an overall thermal efficiency of about 18%, which is not thermally an extraordinarily efficient way of using coal. Therefore electricity is not a thermally efficient way of distributing heat energy.

Dealing with both types of the carbonizing industry—the coke oven industry and the Gas Industry—the thermal efficiencies are very much higher. We can convert, at the works, some 75% of the input of coal into useful thermal energy, but unfortunately only 25% of that energy is of high thermal efficiency use—namely, the gaseous portion. Coke has not a very much higher efficiency than that of the original coal; nevertheless it has a better thermal efficiency in use. Over all, the use of refined fuels from carbonization does show a thermal efficiency greater than the use of raw coal.

No great fuel scheme can ever be brought about under our present system of private enterprise. The scheme will have to be nationally directed and nationally controlled.

The whole of the bituminous coal could be carbonized before it is used. The 35 million tons of coal used in the raw state for household purposes should be dealt with as being the simplest problem to solve in the first instance, and then the supply of fuel for industry would have to be taken in hand. The carbonizing plant in the country would have to be increased about three times, including the carbonizing plant of existing coke ovens. This extra carbonizing plant should be situated as far as possible at the pithead. The type of carbonizing plant most suited for the production of refined fuels would be a combination of high-temperature coke ovens of the large 15 to 20-ton types, together with a narrow oven capable of producing a smokeless fuel for domestic consumption.

If there was a system of sizing, washing, and screening all coal at the colliery there would be even greater quantities of small coal available than there are at present, and they must find an economic market. By blended coal carbonization there would be provided a direct outlet for an inferior type of coal. There should also be a balancing of water gas units and production of medium-temperature high-reactivity solid fuel for hydrogenation under pressure. Water-gas plants would permit of the development of the Fischer-Trotsch synthesis of high quality gas. Co-ordinated in this way we could hydrogenate the enormous amount of oils which could be produced and develop the carbonization of fuel. The method envisages a chemical industry treating the coal and its by-products, thus laying the foundations for a flexible system of producing solid, liquid, and gaseous fuels at will.

Such a scheme would probably involve the area covered by this Association in putting down carbonizing capacity for about 10,000 tons per day, which could be easily accomplished within a period of five years, and in five years' time it should be possible to provide legislative powers requiring all local authorities to make provision for the consumption of only smokeless fuels within their districts. We are, of course, confronted with a deep-seated problem in attempting to displace the coal fire. In my opinion the best way is to foster the use of smokeless fuels and to adopt semi-coke. The system of mass carbonization which I have envisaged provides also the opportunity of balancing out the incidence of dropping one type of fuel and the acceptance by the consumer of another. The domestic lighting load should be left to electricity, and gas, in regard to public lighting, should cease.

It will not be possible for the system of carbonization and coal treatment outlined to provide for all the country's needs for oil, but it would go a long way towards making up for the lack of imported oils which will occur post war.

* From a Paper to the Manchester and District Junior Gas Association.

PRELIMINARY TO PLANNING*

By H. N. DANN (Blackburn)

THE one fact which is fundamental to the Industry is that we have a service to supply. We should consider our function as one of providing a service, and not merely one of manufacturing and distributing a gaseous fuel. The implications then become clear.

They are : 1. To supply the cheapest and best possible service. 2. The uniformity of the service in respect of its principal characteristics must be of the highest order and should vary as little as possible throughout the country. 3. The foregoing points imply that the greatest attention should be given to (*a*) Production; (*b*) Utilization.

The Gas Industry can achieve success in the future only by re-organization. How is this to be effected? The machinery so far created lends itself to criticism. The present system of committees meeting infrequently and apparently working without adequate co-ordination cannot succeed. If the central co-ordination committee is performing its proper functions, then much more material should be available and direction given to the district committees in respect of lines of approach.

I have had before me a series of notes prepared by our Council; they embrace suggestions put forward by members as to the future status of the Junior organizations, and the future of the Gas Industry.

A suggestion is made that each Junior Association prepare data relating to gas supply, mains, manufacturing capacity, coalfields, and industrial and town planning. I assume that when completed these area surveys would be sent forward to the central body for detailed consideration.

Is the consideration of the facts to be directed towards regional planning working through a single national directive body, or are these facts to be collected, classified, and used merely as an index to the Gas Industry in particular regions? The available published data are necessarily insufficient for a thorough-going examination of the potential of each and every unit of the Industry but, in themselves and properly prepared, even these data can give valuable information. I propose to point out one or two of the facts my own work has brought out, and this work is admittedly incomplete.

We cannot proceed through the list of suggestions without being brought up against the problem of how the Industry is to be controlled, and whatever proposals are put forward which neglect to face this issue appear to be secondary. No body of men meeting at intervals and attempting to decide matters of weight and importance to the future wellbeing of the Industry can, in my view, hope to reduce the present chaos to order and produce a statesmanlike policy without a body of officers engaged full-time on the work.

The study of one area by a district organization will be of value, but a true appreciation of the structure of the Industry throughout the country can only be developed by a comprehensive survey of the country as a whole, and the personnel of the Industry as a whole should have the opportunity to consider this information. My interest in the question has been so aroused that I have thought it well worth while to make a survey of the country even in the limited manner open to me. I have therefore divided the country—that is, England and Wales—into 7 regions. Each region is scaled off into areas of 256 square miles.

The data obtainable from published records easily accessible were: Calorific value, therms sold, types of carbonizing and other plant, consumers, ownership, and gas bought.

* From a Paper to the Manchester and District Junior Gas Association.

These data have been tabulated for each area in each region. The data for each region have been summarized and the total taken out of therms sold and consumers. For each region 5 maps have been or are being prepared.

I have now a set of detailed figures showing the undertakings in each 256 square miles of the country and a set of data giving a summary of this information for each region. By showing the therms sold and consumers as blocks proportionate to the numbers, the map gives at a glance the density of gas used and the consumers in each area and region. The physical maps show the high land in the regions, the rivers, and also the coalfields, and enable an intelligent appreciation to be obtained of the industrial development of the region and future possibilities. By using different colours and hatchings the variation of calorific value from area to area in the region as a whole can be studied, while the controlling authorities are shown again by using different colours.

To achieve unification through regional organizations operating grid systems, then the Industry will have to select its most suitable focal points and at these works and/or sites build large manufacturing plants. Then comes the question of financial control. The main preoccupations of the Industry become entirely re-oriented. If we can determine the basis of our intended reorganization, all other problems become merely secondary.

Legislation for the Industry must of necessity treat the country as a whole; the question then arises as to the linking-up of relatively isolated areas and welding together the units within a region, and region with region.

The folly of the present system of no control is brought out with exceptional clarity in the case of one area of 256 square miles in South Staffordshire; here within a square of side 16 miles are 16 undertakings, some within clear view of one another. One of these undertakings distributes 70% of the total gas distributed in the area, and some of its trunk feeders run through the districts of neighbouring authorities.

I would make these points:

1. The second-largest undertaking in the country is controlled by a local authority.
2. Local authority owned undertakings are among the most efficient and progressive in the country.
3. The distribution of local authority owned undertakings throughout the country is interesting because of the uneven patchy way in which it has developed. It would almost appear that the public consciousness of its claims to own and control its utilities is more highly developed in the industrial regions of the North and the Midlands than elsewhere. How else can we account for the distribution as shown by the table.

Statements made in the past few months by leaders in politics, business, and industry point to a growing feeling of the necessity for the exercise by the Government of considerable control of business and industry. Monopoly organizations, it is conceded, can be efficiently run under such control. Though "parochial conservatism" is deplored, this in itself is not the one drawback to the Industry's continued development.

The analysis of the ownership of gas undertakings region by region shows that though the Holding Company movement has been of considerable benefit in certain directions, it is limited in the extent to which it can develop the Industry for the ultimate good of the nation.

TABLE I.

Region and Constituent Counties.	Companies.	Local Authorities.	Holding Companies.	Private Owners.	Percentage Local Authority.	Calorific Values No., Maximum and Minimum.
Region 1.						
Cheshire, Lancashire, Westmorland, Cumberland, Northumberland, Durham, and Yorkshire	114	115	45	—	41.9	18 600 to 400
Region 2.						
Wales, with Shropshire, Hereford, and Monmouth	47	34	44	3	26.5	13 550 to 400
Region 3.						
Cornwall, Devon, Somerset, Dorset, Wiltshire, Gloucester ...	60	11	63	6	7.9	11 500 to 425
Region 4.						
Lincoln, Rutland, Huntingdon, Cambridgeshire, Suffolk, and Norfolk	49	13	28	3	14.0	10 550 to 350
Region 5.						
Derby, Nottingham, Staffordshire, Leicester, Northampton, Warwick, Worcestershire	62	37	15	—	32.5	14 600 to 200
Region 6.						
Hampshire, Berkshire, Surrey, Sussex, and Kent...	43	9	53	—	8.5	10 560 to 400
Region 7.						
Oxfordshire, Buckingham, Bedford, Hertfordshire, Middlesex, Essex	28	4	30	1	6.3	10 550 to 320
All regions, percentage of total undertakings	43.9	24.3	30.3	1.5	—	—

The following is a summary of communications from members of the Council of the Manchester and District Junior Gas Association on "The Gas Industry in Post-War Years."

It is suggested that in the past the Junior Associations have functioned for the purpose of holding meetings at which technical aspects of the Gas Industry have been discussed, with the object of training its members for higher executive positions, rather than for the purpose of improving the Gas Industry as a whole. The question now arises as to whether the Junior Associations should continue to function as heretofore, or should representation be sought on those committees whose duty it is to meet and discuss such problems.

A suggestion is made that the Council should consider the advisability, or otherwise, of extending the present by-laws so as to enable the objects of the Association to include conditions of employment, salaries, and the general professional standing of members.

The question of education is raised by one member, who states that the present system has a serious drawback, inasmuch as a junior obtains some knowledge of many subjects, but is a master of none. All the time he is studying for the job above him, so that he can never specialize in the job on which he is engaged. Will this be altered in the post-war Industry? In large producing units, every man's job may be his career, and he will have to become a specialist. A brilliant technician is not necessarily a good manager, and failure to recognize this is one of the defects of the present system.

It is stressed that the British Junior Gas Associations' Joint Council should consider post-war changes as affecting the juniors, with particular reference to protecting their interests in a post-war reconstruction.

One member is of the opinion that no alteration should be made to either the title or status of the Manchester Juniors.

The Future of the Industry

The following suggestions are put forward for consideration:

(*a*) A survey to be made of the area of each Junior Association and data relating to gas supply, mains, manufacturing capacity, coalfields, industrial and town planning, &c. The appointment of a sub-committee suggested, co-opting Mr. H. N. Dann as Director.

(*b*) Demand technical development and forward planning of the whole of the fuel industry on the broadest scientific and democratic basis, and from a national and regional viewpoint.

(*c*) Study the probable trend of the Industry and hold meetings to discuss developments. Exert pressure in the right quarter with a view to guiding the trend into the desired channels.

(*d*) Consider the question of concentrating production into vast units near the coalfields, with high-pressure distribution.

(*e*) Ample opportunity for juniors to take an active part in the building-up of plants.

(*f*) Abolition of vested interests.

(*g*) Appointment of a Director of Gas Supply appears to point to the fact that it is incumbent upon the Gas Industry to frame a definite policy.

(*h*) A unanimous lead is required from the Gas Industry to enable the Director of Gas Supply to obtain Government support.

(*i*) The cumbersome structure of the present day, supported by Associations having powers only permissive in character, will have to go.

(*j*) Parochial conservatism in the form of local government control of undertakings must be swept away.

(*k*) Post-war planning requires the full-time attention of the best scientific, engineering, and administration experts that are available. Officers should be permanently seconded and attractive remuneration paid for their services.

(*l*) More intensive technical, commercial, and selling training.

(*m*) Salaries to attract men of high ability.

(*n*) Panel of specialists in manufacture and distribution available to give advice as and when required.

(*o*) The whole of the Gas Industry to come under a central administrative board composed of qualified men.

GAS DISTRIBUTION AS IT AFFECTS POST-WAR PLANNING*

By W. HODKINSON, General Manager, and H. B. TAYLOR, Chief Engineer, of the West Yorkshire Gas Distribution Company

At the end of the war we shall be a relatively poor nation. In our new position it will be necessary to effect the maximum utilization of the country's natural resources, first among which is coal. The Authors suggest that the Gas Industry can do much to improve its general efficiency if it proceeds with the much-discussed schemes of co-ordination. High-pressure distribution through "grids," with centralized production in large units and the maximum utilization of gas produced at the pithead, will lead to efficiency of production. In support of this contention a comparison is made below of some of the more outstanding differences between the Industry as it is now, as it could be now, and as it may well be in the future were the possibilities of bulk distribution exploited.

The Present-day Position.—There are many undertakings manufacturing gas of varying qualities, at varying costs and efficiencies, and in greatly varying quantities. There are many undertakings insufficiently staffed to be able to exercise proper control over production, distribution, and utilization. Between adjacent undertakings there is often a wide difference in price and sales policy. The prestige of the Industry in the eyes of the general public is largely that of the most inefficient undertaking. There is an increasing tendency for the small undertaking to be driven out of business.

Present-day Possibilities.—The gas requirements of a region could be met economically by manufacture either at the pithead or at a minimum number of large works, from which bulk supplies would be delivered at medium pressures to receiving stations at each of the original gas-works. Such a scheme could reduce the cost into holder of at least 90% of the undertakings at present manufacturing gas. A gas of standard specification could be made available throughout the region, the gas being dehydrated and containing nor more than 3 grains of organic sulphur. Loads of any magnitude could be taken up at any point in the region. The Industry could take its right and proper place in the development of rural areas.

The application of semi-high pressures to local distribution systems would be facilitated by the initial pressure freely available from the grid at the local station. The many small compressors and boosters now in use could be shut down. The extensive re-organization of the local distribution systems, which will be required as sales expand by, say, 300%, would be greatly helped.

Technical and managerial staff would become free for the development of utilization, service, and sales. Uniformity of gas charges would become more practicable.

Future Possibilities.—The result of research on high-pressure gasification is eagerly awaited by all interested in centralization and bulk distribution. Production pressures will no doubt be available for utilization in purification processes, thereby bringing revolutionary changes in the technique of ammonia and benzole recovery, liquid hydrogen sulphide processes, and the cheap removal of water and sulphur compounds. The process may well admit of storage and distribution pressures of 250 lb./sq.in., thus involving technique new to this country but commonplace in the United States.

The high-pressure gasification process must stand or fall on its ability to produce a cheaper therm, although the economies of the process must be judged in the widest terms and with full regard to its effect on purification, storage, and distribution.

Should high-pressure gasification fail it is still possible that pressures in the region of 250 lb./sq.in. will be employed for purification, storage, and distribution, crude gas being compressed. The advantages of the new purification technique and the lower capital charges on the mains system then required are likely more than to balance the comparatively small additional cost of compression to these high pressures.

Transition Period.—The end of hostilities and of the period of priority reconstruction which will follow will find many gas plants in need of major attention, following the long period of overloading and minimum repairs. The time will then be opportune for considering the alternative of bulk supplies. It is not suggested that all works could, or should, be at once shut down; of necessity a long period of evolution will be needed. It is suggested that a complete long-term plan be formulated before this phase is reached.

Such a plan would determine the points at which future production would ultimately be concentrated, the loads to be provided for at each station, and the route and bore of all mains. Thereafter, any mains laid between works would be of such design, route, and bore as to fit into the final pattern. It might well be common during this period for a works ultimately to be shut down to be repaired and even extended in order that it may temporarily supply a neighbouring works in worse plight than itself. In such a case, while a small main might meet the immediate needs, the ultimate plan might call for a large main; clearly the larger main should be laid.

It is of the greatest importance that all mains eventually to become part of a grid system be laid by one distribution authority. Only in such manner can good order and an efficient system be finally secured. The authority should have complete control over and responsibility for the design, construction, operation, and maintenance of all plant between the meter inlet at a works and the meter outlet at a station, including the compressors. This might well be extended to storage facilities at each station.

* Paper to the Manchester and District Junior Gas Association.

As a preliminary to the preparation of any such plan the outstanding point to be determined is that of initial pressure. Will future developments in production technique justify the design and construction of grids working at high initial pressures (say, 250 lb./sq.in.), or are the present medium initial pressures (say, 20 to 40 lb./sq.in.) likely to remain the economic maximum?

Further points, secondary to the above but little less vital, require detailed investigation—namely:

(*a*) Can power costs of compression be materially reduced?

(*b*) Is it not in the national interest that wherever possible grid mains be laid across country, powers for the compulsory acquisition of wayleaves being made available?

(*c*) Can a basis be found for the determination of future loads to be provided for?

(*d*) To what extent is automatic control desirable and practicable?

There remains probably the most important point of all. The developments outlined above will require the services of many technicians skilled in the application of the principles and practice of high-pressure distribution. The design of complex high-pressure systems, map reading, route surveys, wayleave negotiations, legal problems, drawing office work, design of "special crossings," concrete work, building construction, supervision of mainlaying and erection of plant, mains records, surveying, metering and the correction of volumes, gas analysis, compression of gas, power for compression, governing of gas at high pressures and for constant volumes, remote control devices; a thorough knowledge of all these subjects and many more will be required of these men. Does the present-day Industry provide suitable training? No longer can distribution remain the most neglected branch of Gas Engineering.

JOINT DISCUSSION

The **President** (Mr. H. Platt) explained that two members had been nominated on the Committee of the National Gas Council. Meanwhile the Council of the Association had met and discussed the problem and had formulated the ideas sent in by members, and those ideas had been condensed under the following heads :

1. Not only is the Gas Industry a vital social service, but it also plays an essential part in the war effort. It has a definite and rightful place in the economic life of the nation and demands equality with other fuel industries in post-war reorganization.
2. An investigation should be commenced to ascertain how far regional planning would be applicable and advantageous to the Gas Industry.
3. Post-war planning requires the attention of the best scientific, engineering and administrative experts that are available. There should be a whole-time Committee with attractive remuneration for the personnel so engaged.
4. There should be greater co-ordination and direction over the research work carried out in the Gas Industry.

The ideas expressed in the four Papers read had been evolved from four different angles, but at the same time mainly under the headings which the Council had determined at their last meeting.

The first essential was to win the war before they began to talk very much about post-war planning in great detail. Despite that fact, however, post-war planning was necessary. The coal, fuel, oil, and electricity undertakings already had their post-war planning committees in being, sanctioned and brought about and sponsored by the Government. Therefore all those on the technical side of the Gas Industry must have their plans in order.

Planning might lie anywhere between the position of the Gas Industry at the present time and the purely ideological level of national fuel and of a national central body.

Mr. **A. K. Collinge** (Preston) questioned whether the members realized the urgency of the problems which had been discussed. They were not discussing matters which might possibly arise in some far-distant future. They would relatively soon be faced with the necessity for a quick solution of all the problems discussed in the Papers. Mr. Albinson had indicated that ideas were necessary for further development. There was, however, a glut of ideas among the members. Looking at those which had been already expressed, he thought it was obvious that they could not be put into practice without bringing about nationalization or national control in some form or another.

Apparently this would only come from outside the Industry. The future of the Industry seemed to be dependent on a national upheaval and a national change of mind, which was beyond the control of the people within the Industry. The indications were that the whole of the fuel industry would become nationalized, whether its individual members desired it or otherwise.

What could they do as an Association of Junior Gas Engineers? Personally he was most interested in suggestion number 3—"Post-war planning requires the attention of the best scientific, engineering, and administrative experts that are available. There should be a whole-time Committee with attractive remuneration for the personnel so engaged." Could anyone visualize such a Committee being formed until national control was instituted? How could it possibly be operated? This idea of a committee of experts had been in his mind for a considerable time, and recently he had drawn up a memorandum on the formation of such a committee. He had in mind the appointment of a panel of experts elected by the Council. Election could take place annually or bi-annually as considered necessary, and the committee should consist of approximately eight members. It would be regarded as an honour to be elected to serve on the committee, and while the scope of the committee would admittedly be limited, at any rate it should be brought into being. An Industry which could show that it was making the best possible use of the technical knowledge it had already acquired would surely be in an advantageous position in the event of national control.

Reference had been made to the conservation of energy, but they appeared to have carried on the Industry on the lines of a dissipation of energy. Far too much time and energy had been wasted on investigations at different works, and people had not known even what had been going on in works within their own area.

In order to elaborate his suggestion he had drawn up a list of about 14 questions which he regarded as typical of those likely to be addressed to the panel, which was not intended to encroach upon the province of the Gas Research Board. The panel would deal with problems which cropped up in the case of most works and the Council could answer the questions at once, even by telephone, and help some struggling engineer out of a difficulty. If not, a brief visit on the part of the enquirer to a particular works would be all that was required to acquire the desired information. For the operation of such a panel, of course, it was necessary that it should receive the support of the chiefs of the undertakings.

Mr. **J. Castle** (Northwich) wished to raise a point regarding the overall efficiency of heat processes, commencing with the coal and finishing with its actual utility to the consumer. If a national fuel policy was to be formulated, then it appeared to him that the proper use of coal must be a first consideration. That being so, it was not enough to say that a gas-works was, say, 80% efficient in the production of fuels from coal, or that an electrical undertaking was 20% efficient in the production of electrical energy. What was really required was a knowledge of the final efficiency of utilization of coal energy in the form of gas, coke, or electricity.

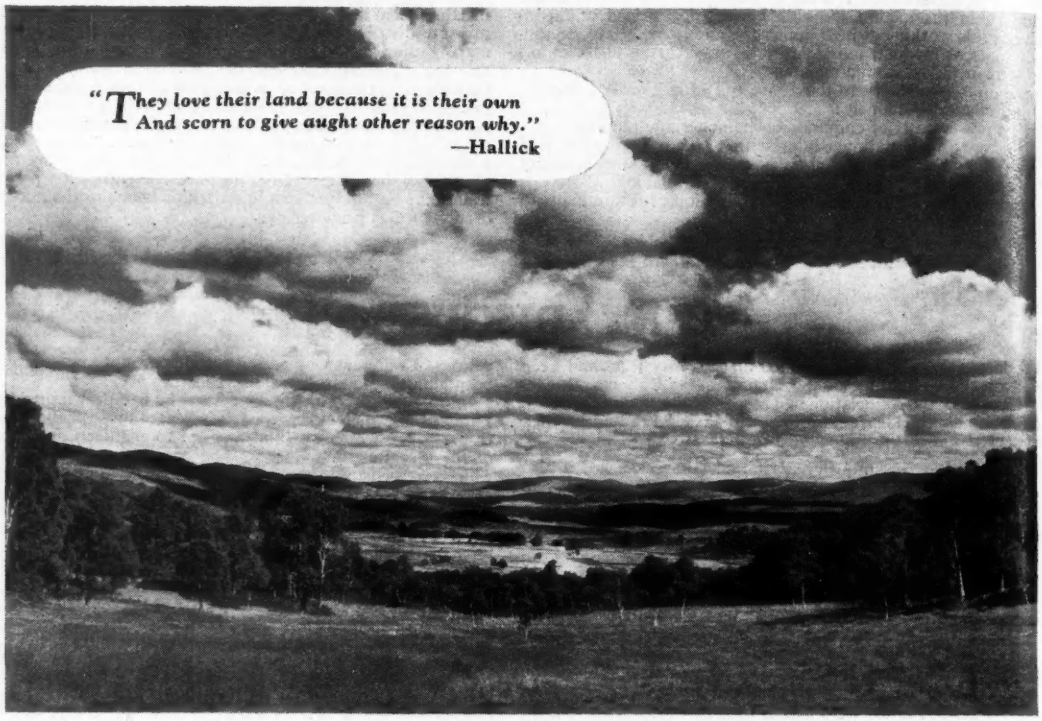
A specific example was the question of power. The air standard efficiency limited the maximum efficiency of steam engines, turbines, gas engines, and so forth. If they were going to produce different forms of power to act as turners of machinery, then they would require to ascertain, and a central body would require to know, which was the best and most economical form of power. Then it would be possible to say one particular form of power was more economical in its use of coal.

The question of total gasification had been raised. Some time ago he, the speaker, saw a photograph of a plant which was said to be capable of producing a million cubic feet of gas per day, which, together with its purification plant, could be stood comfortably upon the small stage of the Radiant House demonstration theatre. The idea of complete gasification was raised by Cobb and his collaborators towards the end of the last war. They laid down certain fundamental principles which it was necessary to observe before complete gasification of coal could be considered to take place on an economic basis. At the time, most of the conditions which they laid down were such as to make a complete gasification plant uneconomical, but as the years went by many of these conditions began to be realized. It was left to the Germans to note that the conditions originally laid down by Cobb and his co-workers were rapidly approaching the stage when complete gasification under high pressure would be an economic possibility.

Therefore, if they were going to establish a central research staff, some of the activities of that staff should be devoted to the correlating of new work done by research workers, and of work which had been done in the past 100 years or any other period which was considered to be advisable. It was frequently found when studying chemistry that laws had been formulated years ago, and because there was no useful application for them at the time, they had been forgotten. Highly-skilled workers had later spent many years evolving precisely the same laws that had been previously formulated.

A point had been raised regarding the standardization of calorific value. This should proceed as quickly as possible. Although it had been said that grave difficulties would be encountered in this respect all over the country, surely they would be no graver than had been the difficulties with which the electrical supply authorities had had to contend to supply alternating current. A great amount of machinery and equipment had had to be destroyed in order that alternating current could be introduced, but it had been found to be a very useful and necessary change.

Dealing with smokeless fuel particularly as it affected the domestic consumer, it had been mentioned that people had a liking for the open fire. It was stated to be a psychological aspect of the people in this country. This might be so, but what was required was education and attractive tariffs to combat this point of view.



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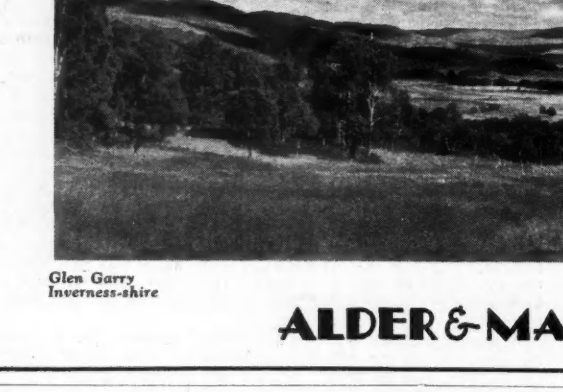

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Before he lived in the Lancashire area he lived in an all-gas five-roomed house. He used 180,000 cu.ft. of gas per annum, and this figure was later increased to 220,000 cu.ft. per annum during the past two very severe winters. He mentioned this because he wanted people to understand the sort of thing smokeless fuel really meant; 220,000 cu.ft. per annum would mean in a town of 10,000 houses a gas-works capable of producing for domestic consumption alone something in the region of 2,000 million cu.ft. per annum, as against a works at present sending out probably 100 million cu.ft. per annum.

He had lived in a town which used approximately 130 million cu.ft. per annum for domestic consumption. The town had about 8,000 houses, so it could be imagined what was the type of gas-works which would be required if they were to go in for all-gas houses.

Mr. **F. Bell** (Liverpool) thought that the final working out of any scheme or schemes as outlined in the Papers read was dependent upon the consideration mentioned by Mr. Albinson at the beginning of his remarks—either nationalization or national direction. The whole of Mr. Dann's able survey of the country and his division of it into sections was again dependent upon national direction or national enforcement. Regard must be paid to the points mentioned by Mr. Albinson about discussions between certain undertakings and certain bodies as to where coke oven gas should be bought and where it should be supplied. Why should those discussions be taking place? People should be told.

The areas which Mr. Dann had mapped out would need to be specified. Then an effort could be made to ascertain where the best positions for carbonization and distributing points should be. In their early academic training in regard to fuel and its application, they had always been taught that the best place for gas manufacture, economically and practically, was at the pit-head. The particular type of coal for a particular type of work could be selected at the pit-head, whether it was required for gas production, coking, or anything else. The coal could be washed, the tar and ammoniacal liquor, &c., could be dealt with all at one place, and the gas could be distributed in some such manner as the West Yorkshire Grid were using in a certain section of Yorkshire.

In the West Yorkshire Grid area, due to the fact that a private Company was operating, they were distributing the gas to certain undertakings only, though they were weaving their way in and out of other undertakings. Under the new order which was being visualized there would be an equivalent of the West Yorkshire grid supplying gas not in one or two cases, but to all. Therefore the distributing costs would be considerably lighter than those shown by Mr. Hodkinson and Mr. Taylor to the coke oven managers. These comments were made merely to bring out that they were all dependent upon one another, even to the extent of their research work. Some measure of compulsion would have to be applied to undertakings as to the lines upon which they should work.

Another observation was with reference to the comment made by Mr. Hodkinson and Mr. Taylor regarding the efficiency of the undertakings generally being taken as the efficiency of the worst undertaking. Unfortunately, this was the case. Grouping would, of course, gradually weed out those inefficient undertakings, and it was hoped they would be replaced by one efficient body which might have an efficient carbonizing medium and distributing system and finally efficient direction from the point of view of both straight administration and correct utilization of the products.

Mr. **W. S. Hubbard** (Liverpool) remarked that, in his opinion, post-war planning will be automatically decided by the international situation at the conclusion of hostilities. They all knew how valuable the coal resources were to us in this country, but unfortunately they could not live by coal alone. They depended on international trade, and therefore the satisfactory arrangement of this would decide how post-war planning should go.

For those who had spare time, it seemed rather an interesting hobby to sit at home and divide the country into gas distribution areas, each considering that he had the most economic solution. The problem was not so simple; they were in the gas engineering profession and thought along their own lines, and their electrical colleagues thought on their lines. Apparently the only satisfactory course was to declare a national policy on the fuel problem and for all the multifarious parties interested to meet together at one and the same time. Generally speaking it would appear that certain economics could be decided almost immediately.

The West Yorkshire Grid developed rapidly, but it appeared to stop suddenly at the doorsteps of such large undertakings as Manchester, Leeds, Bradford, and Sheffield. These undertakings were developing first class consumer services, and unless the West Yorkshire Grid could improve on these it would hardly seem worth further development. On the other hand, the West Yorkshire Grid would no doubt benefit from the existing service at these places. The service to the consumer was one important factor and the economy to the nation was the other.

They were discussing their abilities on post-war planning, but they did not assert their abilities in this direction when one read Professor Townend's Paper to the Institution on Leeds University Gas Education. He mentioned the startling fact that in some 20 years hardly 200 students had passed through the courses in Gas Engineering. Of these, 53 were employed in gas undertakings, another 30 with the gas contractors, and the rest gone into other forms of employment, probably the coke oven industry. Such published facts did not assist the Gas Industry in asserting its correct place.

His personal opinion was that the Industry as a whole was far too insular. Its ranks should be open to all capable people of a minimum standard of education and whose subsequent experience and training was not necessarily in the Industry.

Mr. **Hodkinson** (U.K.) remarked that Mr. Hubbard had referred to the efforts of the West Yorkshire Gas Distribution Company. Mr. Hubbard was not quite up to date with his information.

Mr. Bell had pointed to the fact that the Grid had been confined to that area covered by the undertakings owned by the parent Corporation. This was correct. When the Company went to the House of Commons for power to effect this scheme of co-ordination they extended to the adjoining undertakings the opportunity to share in the scheme. The reaction of the adjoining undertakings was parochial history, but it was significant that the original scheme submitted to the House might well be taken for the results of a present-day Gas Industry Planning Committee.

Mr. Castle had referred to the development of the domestic load and the importance of tariffs. This was a most important subject and required serious consideration. Prior to the war the price policy of the Industry was developing into a policy of scientific dumping on the lines followed by the electrical industry. There was, however, one very important difference. The electrical industry could successfully "dump" on their "high-priced" lighting load, where they had a definite monopoly. The Gas Industry had no such monopoly and therefore the policy was weak and liable to failure. It was therefore important that tariffs should be developed, aided by cheaper production costs.

Mr. Collinge had suggested the formation of panels of experts. He believed that a panel composed of senior engineers had been formed in the Midlands and that a similar scheme had been considered in Lancashire.

Mr. Castle had mentioned the power load almost as one which should be handed to the electrical people in any scheme of fuel collaboration. This should be resisted strongly. The high compression ratio gas engine had tremendous potentialities when considered in relation to this country's power load.

Mr. Dann had referred to a survey of information which was available and published at the present time, and appeared to indicate that this information could be used to examine the broad outlines of centralization and bulk distribution in regions. If this was Mr. Dann's meaning, then he joined issue with him, because he had found from experience that they had not the slightest appreciation of the loads available to them, particularly in the smaller undertakings. The availability of volumes of grid gas in the undertakings served by the West Yorkshire Gas Distribution Company had brought out this point very clearly.

In general discussion it was said that it would be impossible to reorganize without national direction or nationalization. He would refer members to the work of the Imperial Continental Gas Association in Belgium, where they had carried out a major scheme in collaboration with municipal authorities and private undertakings.

Mr. **J. Graham** (Lancaster) did not believe the Gas Industry should be a candidate for the National Stakes, and did not believe that nationalization would effect an improvement in the economics of gas undertakings. Linking up was not merely a matter of connecting up the two ends of mains and then getting a supply through in the event of a breakdown. It depended entirely on the quantity of gas that the neighbouring undertaking was capable of supplying, the pressure at the point of delivery, the size of main, and distance to the point where the supply was mainly to be used. There should be not merely a scheme of supply in case of emergency, but also a scheme in the event of one undertaking being able to take a load at a time when another undertaking could afford to send it through at a reasonable price by perhaps putting another two or three beds into service. Again, one plant might be able to shut down completely for repairs and the area concerned take its gas from a next-door neighbour. He was in agreement with Mr. Collinge regarding the appointment of a panel of executives, or Juniors holding executive positions, which should enjoy the confidence of the chiefs of the undertakings.

Mr. **H. N. Dann** thought that Mr. Hodkinson's remarks had demonstrated the necessity for the Industry generally to know where the various undertakings were situated from a geographical point of view, and what were their makes and distribution outputs. Mr. Hodkinson had also spoken of large loads dropping into the lap of the West Yorkshire Gas Distribution Company owing to the development of the grid system, but he must bear in mind that the area at present supplied by the Company was a comparatively small and special part of the country. Future legislation would be concerned with the whole of the country and not merely with a small section of Yorkshire. They must learn what the country was capable of taking and what the Industry could do. His own contention was that at the moment the Gas Industry was not aware of its own capacity. A datum line must be fixed somewhere before any definite determination could be arrived at.

Upon the motion of Mr. **J. H. Race** (Radcliffe), seconded by Mr. A. **Ormrod** (Oldham), a hearty vote of thanks was accorded to the readers of the Papers.

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Gas Products Prices

The London Market July 20.

The only change in the prices of Coal Tar Products in the London Market refers to 95/160 Solvent Naphtha, which is now about 2s. 3d. to 2s. 7d. per gallon.

The Provinces July 20.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 90's, 1s. 10d., pure, 2s. 5d. (controlled by the Control of Toluene No. 2 Order, July 3, 1941, which fixes the maximum price at which this material may be sold). Coal tar, crude naphtha, in bulk, North, 1s. to 1s. 4d. according to quality. Solvent naphtha, naked, North, 2s. 2d. to 2s. 6d. Heavy naphtha, North, 1s. 10d. to 1s. 11d. Carbolic acid, 60's, controlled by the Coal Tar Acids Prices (Inland) Order, 1942, operative from May 1. Naphthalene, controlled by the Naphthalene prices (Inland) Order, 1942, dated April 15, 1942, and operative from May 1, 1942, £19 to £19 10s.—bags free. Anthracene, controlled by the Anthracene Prices (Inland) Order, 1942, operative from May 1. Filtered heavy oil (min. gr. 1,080), 7¼d. to 8d. Creosote oil has been generally controlled as to direction and price for some time past. Current value—fuel grades 5d. to 5¼d; timber preservation and other purposes 4¾d. to 6d. These prices apply as from May 13.

*In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Tar Products in Scotland July 18.

There are no changes to record with deliveries proceeding satisfactorily. Refined tar controlled. Value about 4½d. per gallon *ex* Works, naked. Creosote oil: Specification oil 6¾d. to 7d.; low gravity, 7¼d. to 7½d.; neutral oil, 6¾d. to 7d. per gallon; all *ex* Works in bulk. Cresylic acid is, if anything, less difficult. Refined acids are valued at 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha 6½d. to 7d. Solvent naphtha: 90/160 grade, 2s. to 2s. 3d., and 90/190 Heavy Naphtha, 1s. 9d. to 2s. per gallon. Pyridine: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

Gas Stocks and Shares

Stock markets on the whole were a little more cheerful last week with gilt-edged stocks still firm favourites, although towards the close more activity was noticed among industrials. There was not much doing in the Gas Market, however, and prices generally, although well maintained, showed little change. A few stocks were marked *ex div.*, the rates payable in all cases being equivalent to those paid for the corresponding period of 1941.

The following quotations were changed during the week:

PROVINCIAL EXCHANGES

Bristol 5 p.c. max.	109—111	+1
Ditto 1st 4 p.c. Deb.	101—103	+1
Newcastle 3½ p.c. Deb. (*x.d.*) ...	86½—87½	June 29
Ditto 3½ p.c. Red. Deb. (*x.d.*) ...	88—90	,,
Sheffield 4 p.c. Deb. (*x.d.*)	98—100	July 6

OFFICIAL LIST

Associated Gas & Water Ord. ...	16/3—17/3	+-/3d.
Cardiff Ord. (*x.d.*)	100—105	July 13
Gas Consolidation Ord. (*x.d.*) ...	15/—17/—	,,
South Metropolitan 3 p.c. Deb. ...	76—81	—1
Ditto 5 p.c. Red. Deb. (*x.d.*) ...	100—105	July 13
Southampton Ord.	72—77	+2

SUPPLEMENTARY LIST

Gas Consolidation "A" Ord. (*x.d.*)	11/6—13/6	July 13

At the Annual Meeting of Duns Gaslight Company, presided over by Mr. R. J. Philp, a dividend of 5% was declared.

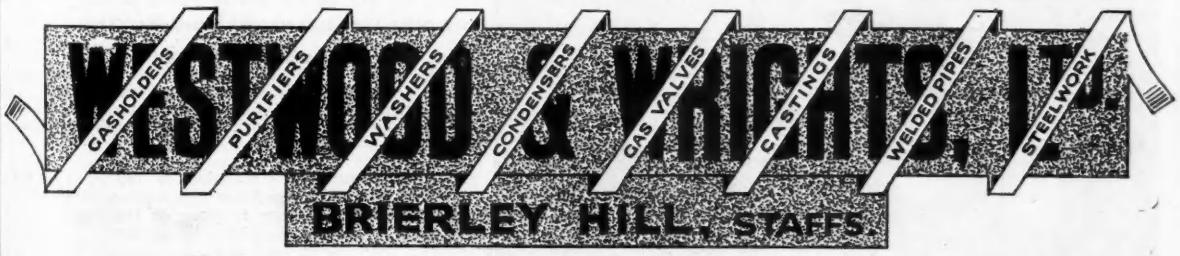
"For the Duration," the charge for the use of gas meters at Lytham St. Annes is to be reduced to 1s. per quarter, irrespective of consumption.

The Directors of the Brechin Gas Company have recommended payment of a dividend on the ordinary shares at the rate of 2s. 6d. per share and a bonus of 9d. per share, both less income tax.

At the Annual Meeting of Galashiels Gas Light Company, the Chairman, Mr. G. Carruthers, in submitting his report, stated that the Directors were satisfied with the results obtained during a year which had been marked by many difficulties and handicaps. They recommended a dividend of 5% tax free (same as previous year).

At the Annual Meeting of Berwick and Tweedmouth Gaslight Company, presided over by Mr. H. R. Peters, Chairman of Directors, a dividend of 5% was declared, subject to deduction of tax, this being the same figure as last year.

At the Annual Meeting of the Oundle (Northants) Gas Light and Coke Company, Ltd., reference was made to the death of Mr. John M. Siddons, Managing Director and Chairman. Mr. J. Rappiner was elected as Chairman of the Board of Directors. Mr. W. H. Frost, Works Manager, was co-opted on the Board.



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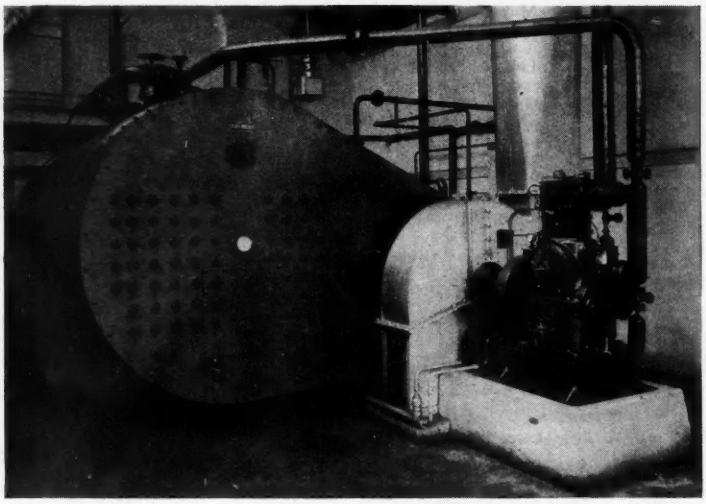

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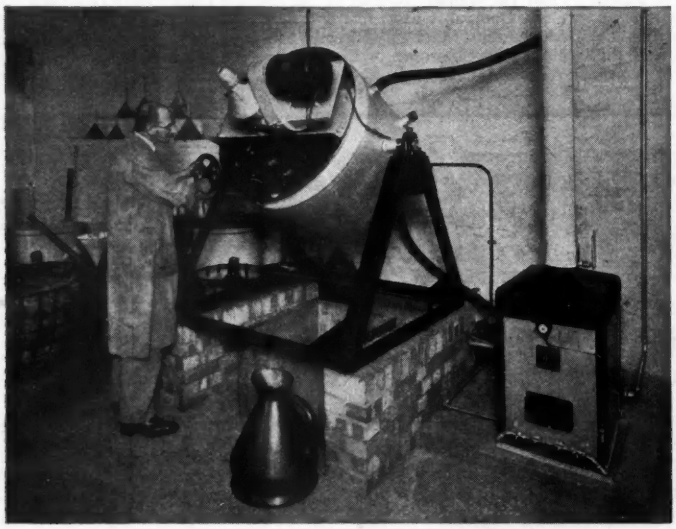

"REX" Boiler with flexible connection to a jacketed pan.

Potterton's Gas Water Heaters

are being used in numerous ways for WAR services.

The illustration shows an unusual example where flexiblity is greatly pronounced.

The duty of the "REX" Gas Water Heater in this case is to heat the jacket of a pan used for liquifying certain substances.

The temperature of circulation is 180° F., and the couplings are so arranged that the pan can be tipped to an angle of 90° in order to pour off the liquid when required.

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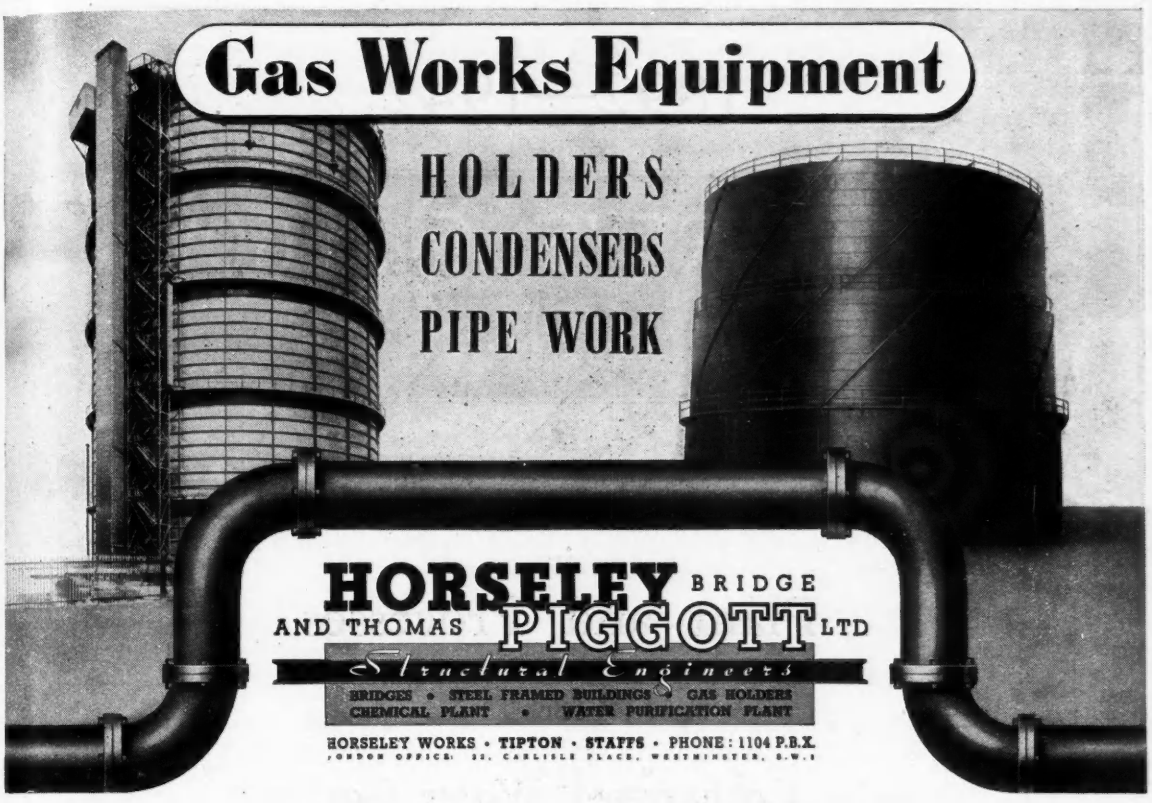
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Fig. 1.—The sealed chamber prevents gas or air affecting the gas-proof bag, which is always in position ready for instantaneous use.

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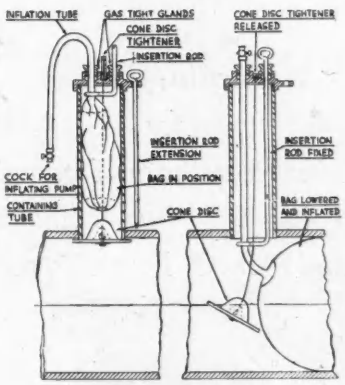

Fig. 1 Fig. 2

Screwed Tubes are all Standard Gas Sizes. Prices according to size of Gas Bag.

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Fig. 2.—To operate, screw insertion rod in extension holder. Release the disc and glands. Push bag into main and inflate. Re-tighten glands and leave. Time involved under one minute on 12" Main.

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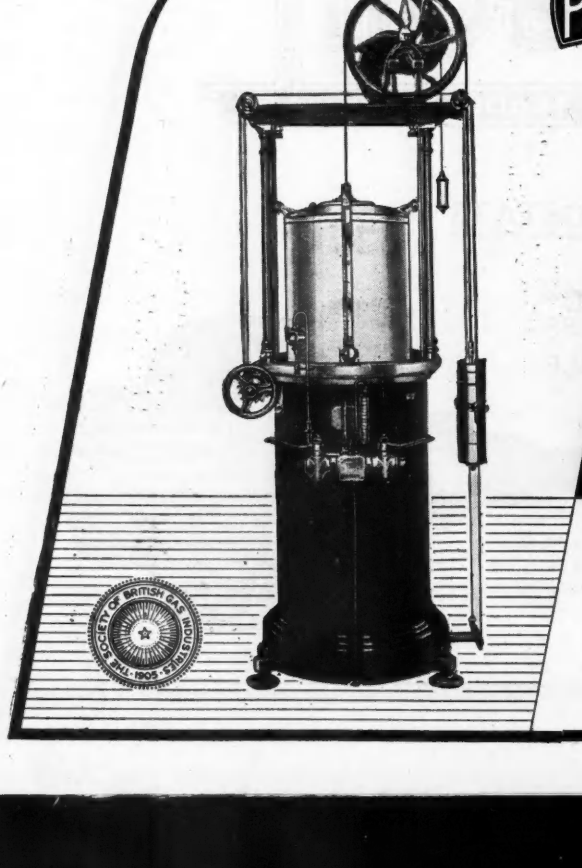

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